1. Record Nr. UNINA9911066119503321

| | |
|---|---|
| Autore | Panghal Anil |
| Titolo | Synbiotics, 2 Volume Set |
| Pubbl/distr/stampa | Newark : , : John Wiley & Sons, Incorporated, , 2026<br>©2026 |
| ISBN | 1-394-26908-0<br>1-394-26906-4 |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (841 pages) |
| Collana | Bioprocessing in Food Science Series |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Cover -- Volume 1 -- Series Page -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 The New Frontier in Healthy Living: Synbiotic Drinks Combining Probiotics and Prebiotics -- Introduction -- Fruits -- Fruit Juices as a Probiotic Medium -- Juice-Based Beverages -- Prebiotics -- Probiotics -- Synbiotics -- Conclusion -- Future Prospects -- References -- Chapter 2 Synbiotics: Production, Applications, and Health Promotion -- 2.1 Introduction -- 2.2 Synbiotic Formulation -- 2.3 Applications -- 2.3.1 Dairy Products -- 2.3.2 Ice Cream -- 2.3.3 Petit-Suisse Cheese -- 2.3.4 Fermented Skimmed Milk -- 2.3.5 Chocolates -- 2.3.6 Candies -- 2.3.7 Antioxidants -- 2.3.8 Prebiotic Components -- 2.3.9 Synbiotic Components -- 2.3.10 Action Mechanism of Synbiotics -- 2.4 Synbiotics in the Prevention and Management of Chronic Illnesses -- 2.4.1 Irritable Bowel Syndrome and Diarrhea -- 2.4.2 Hypercholesterolemia -- 2.4.3 Diabetes -- 2.4.4 Dental Well-Being -- 2.4.5 Cancer -- 2.4.6 Overweight -- 2.4.7 Oxidative Stress and Lipid Oxidation -- 2.4.8 COVID-19 Infections -- 2.4.9 Respiratory Tract Infections -- 2.4.10 Helicobacter pylori Infection -- 2.4.11 Infant Health -- 2.5 Impact of Synbiotics on Health Promotion -- 2.6 Conclusion -- 2.7 Perspectives for the Future -- References -- Chapter 3 Understanding the Role of Multi-Strain Probiotics in Improving Consumer Health -- 3.1 Introduction -- 3.2 Mechanism of Action -- 3.2.1 Modulation of Gut Microbiota -- 3.2.2 |

Enhancement of the Intestinal Barrier Function -- 3.2.3 Immune System Modulation -- 3.3 Benefits of Multi-Strain Probiotics -- 3.3.1 Establishment/Restoration of a Balanced Microbiome -- 3.3.2 Broad Spectrum of Benefits -- 3.3.3 Tailored Formulations for Specific Health Conditions -- 3.4 Applications of Multi-Strain Probiotics -- 3.4.1 Treatment of Diseases.
3.4.2 Improved Livestock Health and Productivity -- 3.5 Conclusion -- Acknowledgments -- References -- Chapter 4 Co-Encapsulated Synbiotics for Improved Human Health -- 4.1 Introduction -- 4.2 Co-Encapsulated Synbiotics -- 4.3 Carriers Used for Co-Encapsulation -- 4.3.1 Polysaccharides -- 4.3.2 Proteins -- 4.3.3 Lipids -- 4.3.4 Synthetic Polymers -- 4.4 Microencapsulation -- 4.4.1 Methods of Microencapsulation -- 4.4.1.1 Spray Drying -- 4.4.1.2 Freeze Drying -- 4.4.1.3 Emulsification -- 4.4.1.4 Ionic Gelation -- 4.4.2 Limitations of Microencapsulation -- 4.5 Nanoencapsulation -- 4.6 Encapsulated Synbiotics in Promoting Gut Health -- 4.7 Side Effects Associated with Encapsulated Synbiotics In Vivo -- 4.8 Concluding Remarks -- References -- Chapter 5 Unveiling the Role of Synbiotics in Infant Well-Being -- Introduction -- The Dynamic Duo: Probiotics and Prebiotics -- Infant Gut Microbiota: A Foundation for Health -- Synbiotics in Action: Mechanisms and Clinical Insights -- Clinical Insights and Applications -- Implementation in Infant Formulas and Complementary Feeding -- Conclusion -- Future Prospects -- References -- Chapter 6 Probiotics and Chronic Diseases -- Introduction -- 6.1 Chronic Diseases -- 6.2 Function of Gut Microbiota in Chronic Diseases -- 6.3 Probiotics -- 6.3.1 Selection Criteria -- 6.3.2 Mechanisms of Action -- 6.4 Probiotics in Chronic Diseases -- 6.4.1 Hypercholesterolemia -- 6.4.2 Type 2 Diabetes -- 6.4.3 Chronic Intestinal Conditions -- 6.4.3.1 Irritable Bowel Syndrome -- 6.4.3.2 Inflammatory Bowel Disease -- 6.4.3.3 Helicobacter pylori Infection -- 6.4.3.4 Diarrhea -- 6.4.4 Chronic Kidney Disease -- 6.4.5 Autoimmune Diseases -- 6.5 Future of Probiotics in Chronic Disease -- 6.6 Conclusion -- References -- Chapter 7 Exploring the Connection Between Probiotics and Chronic Diseases -- 7.1 Introduction.
7.2 Mechanism of Action of Probiotics -- 7.2.1 Immune Modulation -- 7.2.2 Gut Barrier Function -- 7.2.3 Competitive Exclusion -- 7.2.4 Production of Bioactive Compounds -- 7.3 Probiotics in Chronic Diseases Management -- 7.3.1 Cardiovascular Disease (CVDs) -- 7.3.2 Obesity -- 7.3.3 Diabetes Mellitus -- 7.3.4 IBD -- 7.3.5 NAFLD -- 7.3.6 Cancer -- 7.4 Conclusion -- Acknowledgments -- References -- Chapter 8 Probiotics and Chronic Disease: A Microbial Approach to Prevention and Management -- 8.1 Introduction -- 8.1.1 Understanding Probiotics -- 8.1.2 Types of Probiotic Microorganisms and Their Associated Benefits -- 8.1.2.1 Genus Lactobacillus -- 8.1.2.2 Genus Bifidobacterium -- 8.1.2.3 Genus Saccharomyces -- 8.1.2.4 Genus Lactococcus -- 8.1.2.5 Genus Enterococcus -- 8.1.2.6 Bacillus -- 8.1.2.7 Escherichia -- 8.2 Chronic Diseases and Their Impact -- 8.2.1 CVD -- 8.2.2 Diabetes -- 8.2.3 Cancer -- 8.3 The Gut Microbiome and Chronic Diseases -- 8.3.1 Disease Link with the Microbiome -- 8.3.1.1 Infectious Illnesses -- 8.3.1.2 Inflammatory Bowel Diseases -- 8.3.1.3 Being Overweight and Metabolic Disorder -- 8.3.1.4 Issues Related to Lungs -- 8.4 Probiotics and Other Living Microorganism Biotherapies -- 8.4.1 Probiotic as a Potential Therapeutic Approach -- 8.4.1.1 Gastrointestinal Disorders -- 8.4.1.2 Metabolic Disorders -- 8.4.1.3 Immune Function -- 8.4.1.4 Mental Health -- 8.5 Mechanism of Action of Probiotics -- 8.6 Clinical Studies and Results -- 8.7 Conclusion -- References -- Chapter 9 Exploring the Triad: Prebiotics, Probiotics, and Synbiotics in Promoting Bone

Health -- 9.1 Introduction -- 9.2 Importance of Prebiotics and Probiotics -- 9.3 Prebiotics in Human Health -- 9.4 Probiotics in Human Health -- 9.5 Synbiotics in Human Health -- 9.6 Impact of Probiotics on Bone Health -- 9.7 The Role of Probiotics in Inflammatory Homeostasis.
9.8 Studies Emphasizing the Importance of Probiotics for Bone Health -- 9.8.1 Case Studies -- 9.8.2 Case Studies: Human Research -- 9.9 The Relationship Between Prebiotics and Bone Health -- 9.9.1 Case Studies -- 9.10 Other Therapeutic Advantages of Prebiotics -- 9.11 Summary -- Bibliography -- Chapter 10 Probiotics and Prebiotics in Oral Health -- 10.1 Introduction -- 10.2 Composition of Oral Microbiota -- 10.2.1 Bacteria -- 10.2.2 Fungi -- 10.2.3 Archaea -- 10.2.4 Viruses -- 10.3 Probiotics in Oral Health -- 10.3.1 Definition and Types of Probiotics -- 10.3.2 Mechanisms of Action of Oral Probiotics -- 10.3.3 Clinical Evidence Supporting the Use of Probiotics in Oral Health -- 10.4 Prebiotics in Oral Health -- 10.4.1 Definition and Types of Prebiotics -- 10.4.2 How Prebiotics Influence Oral Microbiota -- 10.4.3 Mode of Action -- 10.4.4 Clinical Studies on the Use of Prebiotics for Oral Health -- 10.5 Oral Conditions and Probiotics/Prebiotics -- 10.5.1 Dental Caries and Probiotics/Prebiotics -- 10.5.2 Periodontal Diseases and Probiotics/Prebiotics -- 10.5.3 Halitosis (Bad Breath) and Probiotics/Prebiotics -- 10.5.4 Oral Candidiasis and Probiotics/Prebiotics -- 10.5.5 Xerostomia (Dry Mouth) and Probiotics/Prebiotics -- 10.6 Prebiotics and Probiotics in Commercial Oral Health Products -- 10.7 Current Uses of Probiotics and Prebiotics -- 10.8 Safety and Regulations -- 10.8.1 Safety Concerns Related to Probiotics and Prebiotics -- 10.8.2 Regulatory Considerations for Probiotics and Prebiotics in Oral Health Products -- 10.8.2.1 For Probiotics -- 10.8.2.2 For Prebiotics -- 10.9 Implications of the Potential of Probiotics and Prebiotics in Promoting Oral Health -- 10.10 Conclusion -- References -- Abbreviations -- Chapter 11 Synbiotics and the Immune System -- Introduction -- 11.1 Historical Overview -- 11.2 Gut Microbiome and Immunity -- 11.3 Synbiotics. 11.3.1 Types of Synbiotics -- 11.3.2 Product Characterization -- 11.3.3 Synbiotic Designing - Challenges -- 11.4 Impact of Synbiotics on the Immune System -- 11.4.1 Effect on NK Cells -- 11.4.2 Effect on T Cells and B Cells -- 11.4.3 Other Immune Cells and Parameters -- 11.5 Role in Diseases -- 11.6 Future Directions -- 11.7 Conclusion -- References -- Chapter 12 Probiotics and Prebiotics for the Immune System -- 12.1 Introduction -- 12.2 Understanding Synbiotics -- 12.3 Safety Assessment of Probiotics -- 12.4 Toxicity Considerations of Prebiotics: An Overview of Prebiotic Safety -- 12.5 Interactions and Synergy in Synbiotics -- 12.6 Immunomodulatory Effects and Host Response -- 12.7 Long-Term Safety and Health Outcomes -- 12.8 Safety Considerations in Special Populations -- 12.9 Regulatory Landscape and Labeling Requirements -- 12.10 Conclusion -- References -- Chapter 13 Synbiotics for Promoting Health -- Introduction -- 13.1 Synbiotics and Hormonal Regulation -- 13.2 Synbiotics and Thyroid Function -- 13.3 Synbiotics and Immunity -- 13.4 Synbiotics and Renal Function -- 13.5 Synbiotics and Skeletal System -- 13.6 Synbiotic and Cardiovascular System -- 13.7 Synbiotic and Respiratory Tract -- 13.8 Synbiotic and Gastrointestinal Tract -- 13.9 Synbiotic and Liver -- Conclusion -- Bibliography -- Chapter 14 Synbiotics in Cytotoxicity -- 14.1 Introduction -- 14.2 Synbiotics -- 14.3 Mechanisms of Synbiotic-Mediated Cytotoxicity Modulation -- 14.3.1 Effects on Gut Microbiota Balance -- 14.3.2 Modulation of Immune Response -- 14.3.3 Bioactive Metabolites Production -- 14.3.4 Antioxidant and Antiinflammatory Effects -- 14.4 Synbiotics and

Cytotoxicity in Specific Disease States -- 14.4.1 Cancer -- 14.4.2 Gastrointestinal Disorders -- 14.4.3 Neurodegenerative Diseases -- 14.4.4 Other Conditions -- 14.5 Future Directions.
14.5.1 Variability and Specificity of Strain.